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(3) respiration and its products; (4) coloring matters other than chlorophyll and its associates; (5) mineral constituents; and (6) substances produced by stimulation. At the close is an appendix of 21 pages with many supplementary notes and corrections, bringing the data down to June 1905. A complete index renders available the rich store of information summarized in the text, and gives thus a clue to the literature of any substance or the chemistry of any group of plants.

The work is rather more than its title indicates, since it is pervaded by a strong physiological flavor. The chapter on respiration, indeed, is almost as much physiological as chemical, though it deals chiefly with the quantitative relations of the oxygen fixed and the various end-products of "oxidation."

With this work as a convenient register of the work heretofore done in plant chemistry, the progress of knowledge in this field ought to be much accelerated. Even though no such chemical work is in progress, every botanical laboratory, whether in experiment station or college, and every chemical laboratory, in connection with its courses or work in organic chemistry, needs this book for reference; while for public libraries it is as indispensable as an encyclopedia.—C. R. B.

MINOR NOTICES.

Mosses.—The third part of GROUT'S *Mosses with hand-lens and microscope* contains the families Encalyptaceae, Orthotrichaceae, Funariaceae, Bryaceae, Leskeaceae, and some of their smaller allies.³ The Orthotrichaceae and Bryaceae are particularly difficult groups, and the admirably reproduced illustrations from the *Bryologia Europaea* and SULLIVANT'S *Icones* (with an occasional original figure) will be most helpful to amateurs who cannot own these costly works. The keys are clear and concise. The text might easily be improved by being made more formal, with the chatty matters reduced to notes in smaller type under the appropriate headings. But the clientèle to whom the work is addressed will not quarrel with this—until they become increasingly expert and seek data for which the space might have been used but is not. Then it will be time for them to lay aside these useful crutches and take up the technical works. It is a marvel that the author can furnish such numerous and good illustrations and well-printed letter-press at the price.—C. R. B.

Sylloge Fungorum.—Volume XVIII, Part VII of the Supplement of that monumental work of taxonomic mycology, Saccardo's *Sylloge Fungorum*, has recently been issued (January 30, 1906). This volume contains additions bringing as nearly up to date as possible the compilation of descriptions of the Discomycetae, Myxomycetae, Myxobacteriaceae, and Deuteromycetae. The last group, which constitutes the *Fungi Imperfecti* of the older volumes, occupies fully

³ GROUT, A. J., *Mosses with hand-lens and microscope*, a non-technical handbook of the more common mosses of the northeastern United States. Part III. Imp. 8vo. pp. 167-246. *pls.* 36-55. *figs.* 79-133. Brooklyn, N. Y. The Author, 360 Lenox Road. 1906. \$1.25.

two-thirds of the present volume. The work concludes with the usual "reperitorium," index of species, and a complete index of genera in all volumes. The generic index is printed on differently colored paper. Some suggestions regarding the diagnosis and nomenclature of species printed in the first pages of the volume aim to bring about some uniformity in the publication of species. As these rules have been published in several journals,⁴ it is unnecessary to repeat them here:—H. HASSELBRING.

A book for young gardeners.—A booklet prepared by H. D. HEMENWAY,⁵ the director of the School of Horticulture at Hartford, Conn., will prove helpful to those interested in home and school gardens. Aside from simple discussion of the objects and benefits of tillage, the preparation of the soil, and planting the garden, the booklet furnishes abundant and detailed directions for testing and saving the seeds of the more common flowers and vegetables, for the planting of trees, the making of hot-beds, the making of window gardens, and for the culture of strawberries and other fruits. The directions are clear and give with sufficient detail the points most useful to the beginner.—H. HASSELBRING.

Das Pflanzenreich.—Part 25 of this work has just appeared⁶ and contains a presentation of the Juncaceae by the late Dr. FR. BUCHENAU. The usual full discussion of the various structures of the family and its geographical distribution is followed by a synopsis of the 8 genera, among which the species are distributed as follows: *Distichia* (3), *Patosia* (1), *Oxychloe* (2), *Marsippospermum* (3), *Rostkovia* (1), *Prionium* (1), *Luzula* (61, of which 2 are new), *Juncus* (209, of which 5 are new). The whole presentation is remarkably full in details of forms and in illustrations, and is of particular interest to American botanists.—J. M. C.

Index Filicum.—The ninth fascicle of CHRISTENSEN's work has appeared,⁷ carrying the references from *Polypodium Beddomei* to *Polystichum aculeatum*. The great genus *Polypodium* fills the whole fascicle excepting the last page.—J. M. C.

NOTES FOR STUDENTS.

Plant diseases.—CLINTON,⁸ in his report as Botanist of the Connecticut Experiment Station for 1905, presents interesting notes and illustrations of several fungous diseases of plants in that state, followed by a more detailed

⁴ In the United States, in Jour. Mycol. 10:109. 1904.

⁵ HEMENWAY, H. D., Hints and helps for young gardeners, a treatise designed for those young in experience as well as youthful gardeners. 8vo. paper. pp. 59. illustrated. Hartford, Conn.: The Author. 1906. 35 cents.

⁶ ENGLER, A., Das Pflanzenreich. Heft 25, Juncaceae by FR. BUCHENAU. 8vo. pp. 284. figs. 121 (777). Leipzig: Wilhelm Englemann. 1906. M 14.20.

⁷ CHRISTENSEN, C., Index Filicum, etc. Fasc. 9. Copenhagen: H. Hagerups Boghandel. 1906. 3s. 6d.

⁸ CLINTON, G. P., Report of the Botanist. Rept. Conn. Exp. Stat. 1905: 263-330. pls. 13-25. figs. 8-9. 1906.